INTEGRATED REPORTING AND ENVIRONMENTAL DISCLOSURE: IS NATURAL CAPITAL NEGLECTED?

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Abstract

We have entered a new geologic era, the Anthropocene, also defined as the Age of Humans, in which humans are doubtless responsible for ensuring sustainable development. Further research is required to assess actions carried out by business organizations with reference to environment preservation. Our paper contributes to the academic discussion on the role of integrated reporting with a focus on natural capital. We propose to investigate whether and how companies report about natural capital in their integrated reports (IR), in the domain of South Africa. In our study, we investigate the type of information and its positioning in the IR and, notably, in the business model (BM). Our paper provides many contributions to literature. First, it exposes the extent and type of information that can be provided on natural capital through IR. Moreover, the paper contributes to the debate about the efficacy of IR to really enhance sustainability practises.

Keywords: Natural Capital, Integrated Report, Business Model, Sustainability, Africa

Authors' individual contribution: Conceptualization – L.G. and P.V.; Methodology – L.G. and P.V.; Validation – L.G. and P.V.; Investigation – L.G. and P.V.; Supervision – L.G. and P.V.

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1. INTRODUCTION

Scientists have proposed that we have entered a new geologic era: we have left the Holocene and entered the Anthropocene – the Age of Humans. This shift reflects a completely new type of environmental challenge. We, as a species, have grown to such numbers, and our technology has grown to such power, that we are altering the ecosystem on a planetary scale.

Buhr (2007) and Livesey (2002) underline that the "act" of corporate reporting on sustainability has the potential to influence and transform corporate behaviour.

Our paper aims at investigating whether and how companies report about natural capital in their integrated reports.

This issue is considered critical since accounting can be used as an emancipatory device, which can raise stakeholders' awareness of companies' impact. Difficulties in moving towards corporate sustainability raise the question of how environmental and social management can be better integrated with economic business goals (Schaltegger & Wagner, 2011).

In our investigation, we explore the type of information provided and the locus where the information is disclosed: the latter is crucial to evaluate the relevance of the information itself; under our framework, all the elements provided in the "locus" business model (BM) and value creation process are likely to regard the implementation of effective practices connected to natural capital.

When information is not embodied into the BM it risks being disconnected from practices effectively carried out by companies; in this sense justifications regarding environmental concerns rather than actions arise, paving the way for use of impression management tools (Milne, Tregidga, & Walton, 2009; Milne & Gray, 2013).

In this respect, our paper contributes to the academic discussion on the role of integrated reporting with a focus on natural capital. We propose to investigate whether and how companies report about natural capital in their integrated reports (IR) in the domain of South Africa.

South Africa represents a very promising research domain because of the prominent importance of natural capital (Mansoor & Maroun, 2016) and the Johannesburg Stock Exchange regulation that defines IR as a mandatory report for listed companies.

From the methodological point of view, we performed an empirical analysis on the level and the extent of disclosure on natural capital in the corpus of IR extracted by the database of IIRC (International Integrated Reporting Council).

Evidence highlight that IR disclosure on natural capital is more likely a legitimacy and impression management tool rather than a mean to provide real incremental information, thus in line with the literature stream that criticizes IR (Boiral, 2016; Boiral & Heras-Saizarbitoria, 2017; Stacchezzini, Melloni, & Lai, 2016).

Our paper provides many contributions to literature. First, it exposes the extent and type of information that can be provided on natural capital through IR, considering that the research domain is most favourable in this sense.

Second, the paper contributes to the debate about the efficacy of IR to really enhance sustainability practises. Under this perspective, we discuss the adequacy of the IR to stimulate more sustainable behaviour by companies (Alexander & Blum, 2016).

The structure of this paper is as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research on. Section 4 presents the results of the research and develops the discussion, while Section 5 concludes.

2. LITERATURE REVIEW

The recent developments in corporate governance and reporting show a more integrated approach to business management and corporate reporting, with a great emphasis on the relevance of non-financial capital in generating companies' sustainable returns (Atkins & Maroun, 2015; de Villiers, Rinaldi, & Unerman, 2014; IIRC, 2013).

In recent few years, sustainability reporting has become a more common practice (Higgins, Milne, & van Gramberg, 2015), mainly thanks to the adoption of some reporting frameworks, such as the integrated report, proposed by IIRC, and the GRI (Global Reporting Initiative) standards.

Even though the quantity of sustainability reports is rising rapidly (KPMG, 2017), it is important to stress that their quality is still under observation and literature on this subject is on the rise (Cho, Michelon, & Patten, 2012; Milne, Kearins, & Walton, 2006; Milne et al., 2009; Bowen & Aragon-Correa, 2014; Merkl-Davies & Koller, 2012).

Legitimacy theory explains why companies decide to disclose information. According to the theory, organizational survival depends on its ability to preserve the social contract with the community, ensuring financial results.

Du and Vieira (2012, p. 414) state that the "community license to operate" represents the main pillar of legitimacy theory.

Organizations need to continually assure society's consensus: in particular, they have to create "a general perception […] that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definition" (Suchman, 1995, p. 574).

Companies continually exploit disclosure to induce the belief that they are operating within the common bound and norms of society. Some authors (Sonpar, Pazzaglia, & Kornijenko, 2010) argue that an organization manages legitimacy in a strategic, instrumental, and active way; moreover, Suchman (1995) states that legitimacy theory put in evidence "ways in which organizations instrumentally manipulate and deploy evocative symbols in order to garner societal support" (p. 572).

In the accounting literature (Siddiqui, 2013), legitimacy theory is used to explain why companies decide to propose environmental disclosure. Generally, when a company perceives fading legitimacy, its management reacts by implementing countermeasures, including the use of such impression management behaviors as making positive, self-initiated disclosures about the organization (Milne & Patten, 2002; Mobus, 2005). Disclosure of environmental performance contributes to secure moral legitimacy (Matejek & Gössling, 2014; Suchman, 1995).

Matejek and Gössling (2014) state that organizations make corporate environmental disclosures for the purpose of building and maintaining environmental/moral legitimacy.

Environmental reporting practices have been largely explored by authors (Deegan & Gordon, 1996; Hardy & Frost, 2001; Tilt, 2001; Deegan, 2002; Burritt, 2002; Cowan & Gadenne, 2005; Baughn, Bodie, & McIntosh, 2007; Frost, 2007; Clarkson, Li, Richardson, & Vasvari, 2008; Cho & Patten, 2008).

If it is true that reporting should enable stakeholders to make informed decisions (Dingwerth & Eichinger, 2010), it is also true that another tool for corporate public relations.

Talbot and Boiral (2015) underline the companies' tendency to present an idealized image of reality; when organizations present corporate reporting information in order to take advantage of information asymmetries, they adopt impression management strategies (Merkl-Davies, Brennan, & McLeay, 2011). In this way, companies tend to influence stakeholder perceptions (Bolino, Kacmar, Turnley, & Gilstrap, 2008; Talbot & Boiral, 2015).

Impression management within natural capital has been recently addressed by academics (Boiral, 2016; Boiral & Heras-Saizarbitoria, 2017), who state that "as stressed by theories of neo-institutionalism, external pressures and the search for corporate legitimacy are two of the main reasons for implementing new practices, especially in the area of environmental management, natural capital and biodiversity" (p. 404).

Graphs (Cho et al., 2012) and photographs (Davison, 2007) can be used in financial reports tools of impression management: visuals in general, in fact, are characterized by high communicative power because they are very direct and immediate.

The study of Lambooy, Maas, van 't Foort, and van Tilburg (2018) confirms that investors are only interested in natural capital when it is clearly and directly linked to (reduced) financial risks.

The sincerity of corporate environmental reporting has been widely discussed in the literature.

Cho, Laine, Roberts, and Rodrigue (2015) describe the organized hypocrisy model, in which a company's rhetoric and disclosure, on one side, and corresponding actions, on the other side, are decoupled, often even inversely related.

The complexity of the contemporary competitive arena, the level of external pressures, together with a lack of complete access to information, makes it difficult to verify the validity of declared statements.

Christensen, Morsing, and Thyssen (2013) state that a temporary gap between corporate talk and actions can motivate a transformation toward the aspirations conveyed in the talk, pushing the corporation to implement better social responsibility (reporting) practices.

Maroun and Atkins (2018), proposing their framework on extinction accounting, underline the accountancy's emancipatory potential; reporting practices encourage changes in mindsets and "bring about social change" (p. 107).

The authors conceptualize integrated reporting as a rational myth and the exploration of its ramifications; this approach enables them to introduce the role of myth as a relevant lens for studying non-financial reporting, suggesting that myths can play a productive role in transforming business and reporting practices.

The revolutionary and emancipatory power, implicit in the extinction theory, consonants also in a recent work that explores the myth as a founding element of integrating reporting (Gibassier, Rodrigue, & Arjaliès, 2018).

As widely known, sustainability reporting has a long history (de Villiers and Maroun, 2017, who cite for instance evidence of an early form of financial accounting to employees dating to 1917). We thought that it is more appropriate to explore, from a managerial and organizational perspective, the issue of integrated reporting, in the light of some considerations that follow.

First of all, GRI 304 contains elements of a highly technical nature which, although of great relevance for corporate matters as well, are perhaps more immediately intelligible to an industry technician. Instead, the integrated reporting as proposed by IIRC (2013), according to its purpose ("…explain to providers of financial capital how an organization creates value over time" (p. 7)) and to its content elements (notably the presence of business model), seems to us to be, in this case, something more and something else than sustainability reporting.

The core elements of IR are represented by the capitals (natural capital included) that an organization uses and affects, as well as the process of creating value over time.

The assessment of an organization's ability to create value depends on an understanding of the connectivity between all the internal and external factors in its business model.

In order to assess companies' commitment to sustainability, we propose to investigate companies' disclosure about natural capital within the IR and, notably the section devoted to the value creation process and BM.

The analysis of this section disclosure can help understand whether and how companies implement sustainability strategies in their day-to-day operations.

A company's commitment to sustainability should not only be about "the programmes to reduce emissions or to invest in a local school" (Baker, 2011, p. 17) but should also permeate a company's day-to-day operations (Engert, Rauter, & Baumgartner, 2016).

Following this view of CSR "in action" (de Bakker, 2016), a real commitment to sustainability demands a strategic approach that integrates sustainability issues in the company's BM (Schaltegger, Lüdeke-Freund, & Hansen, 2012).

Even though it is quite difficult to identify a unique definition of BM (Magretta, 2002), the concept has increasingly been discussed in debates both in accounting and management studies.

Accounting scholars consider the BM as a communication device that can improve a company's attempts to disclosure, offering insight into the value creation process (Bini, Bellucci, & Giunta, 2018).

Bukh (2003) affirms that investors need to examine a company's BM to fully appreciate information about non-financial indicators. So, BM disclosure is considered useful in assessing any piece of non-financial information that is difficult to understand if it is not related to the context, including sustainability information (Nielsen, 2010).

Among others, Beattie and Smith (2013), Page (2014), and Singleton-Green (2014) have discussed the concept of BM and the potential pros and cons deriving from adopting this concept as a basis for measurement standards or for requirements for narrative reporting.

Investors consider BM reporting "critical" to understand firms' performance as it provides an integrated description of how a firm generates its revenues (Greiner & Ang, 2012).

Management literature has developed a diverse set of BM concepts and framework; main contributions regards business model innovation (Chesbrough, 2007; Massa & Tucci, 2013); open business models (Chesbrough, 2010); network-based business models (Lindgren, Taran, & Boer, 2010); business model performance mapping (Nielsen, 2010; Montemari & Nielsen, 2013); business model patterns (Johnson, 2010; Gassmann, Frankenberger, & Csik, 2013); business model innovation typologies (Taran, Boer, & Lindgren, 2013); sustainable entrepreneurship (Schaltegger, Hansen, & Lüdeke-Freund, 2016).

A stream of literature (Osterwalder, Pigneur, & Tucci, 2005) considers the BM as "a conceptual model that explicitly states how the business functions" (p. 4). BM can be useful in assessing a company's engagement in sustainability practises because it should reveal how sustainability is actually implemented.

The recent debate on BM lead to different attempts to redesign the old BM, with the aim to integrate financial information with other valuable information about the company's strategy and its intellectual, environmental, and social capital (Beattie & Smith, 2013). On this stream, Tweedie, Nielsen, and Martinov-Bennie (2018) demonstrate the BM concept proposed in the IR only partially reconciles prior concepts and presents a distinctive audience, time horizon, scope, and structure.

Following Gibbins, Richardson, and Waterhouse (1990), we argue that the "locus" of information (where it is disclosed) it is crucial to evaluate the relevance of the information itself; under our framework, all the elements included in the business model and value creation process regard the implementation of strategy in day-to-day operation (Bini et al., 2018).

When information is not embodied into the BM it risks being disconnected from practices effectively carried out by companies; in this sense justifications regarding environmental concerns rather than actions arise, paving the way for use of impression management tools (Milne et al., 2009; Milne & Gray, 2013).

In our analysis, we want to trace the nature of the information provided in the BM and value creation process section of IR. In doing that, we decline information in term of:

- volume (number of information items); visuals or narratives;
- type (quantitative or qualitative);
- time orientation (forward – non-forward-looking);
- role (input/output/outcomes).

On the basis of the previous considerations, we propose the following research hypothesis:

H1: The information on natural capital are more likely to be effective if they are:

a) provided in the BM section;

b) also forward-looking;

c) also quantitative;

d) classified into the business cycle as input/output/outcomes.

In our analysis, we are interested in checking if the information provided by selected companies meets the requirements above. We aim to contribute to the debate about the effectiveness of integrated reporting with reference to environmental practices.

3. RESEARCH METHODOLOGY

To analyse the data, we performed a content analysis in this exploratory study, an appropriate method (Mansoor & Maroun, 2016) given the limited research on natural capital and the need to process information that cannot be objectively measured on a relative scale.

With regard to the sample, Merkl-Davies et al. (2011) assert that relatively small sample size does not compromise the validity and reliability of exploratory studies.

Following Talbot and Boiral (2015), we then proceeded to systematically classify the collected data.

Specifically, and in line with Samkin, Schneider, and Tappin (2014) and Mansoor and Maroun (2016), sentences constitute our "counting factor", since they offer greater insights than single word counts or lexical periods.

In terms of visuals, we only considered photographs, which constitute a small portion of images in integrated reports (generally including pictures, photographs, cartoons, charts, maps, diagrams, and financial graphs), in line with some accountability scholars (Davison, 2007).

The codification method we adopted in our framework is detailed in Table 1.

Table 1. The procedure of content analysis

Information items	*Content analysis*
Volume of information	Number of sentences
Locus	Capital only Business model/Value creation process only Capital and business model Shareholder letter Other
Time orientation	Historical only Forward-looking only Mixed Unclear
Type	Qualitative only Quantitative only Mixed
Tone	Clearly positive Clearly negative Both Ambiguous
Role	Input Output Outcome
Photographs (visual)	Number of photographs

Volume of information measures the relative weight and importance of the topic in the main body of the integrated reports, while the *locus* allows understanding whether the information is likely to be translated into actions with a tangible impact on natural capital. *Time orientation*, *type*, and *tone* refer to the content and significance of the information, while *role* enables understanding whether the company explicitly considers natural capital as an input/output/outcome of the business cycle.

Finally, a *number of photographs* captures the visual dimension, while narratives aim to convey the corporate discourse on natural capital.

The data were extracted only from the integrated reports. In fact, where a sustainability report was included in the integrated report, these data were excluded.

From the IIRC database, we extracted all companies incorporated in the "Africa" region, and reviewed their latest available integrated reports, most referring to the financial year ending 31 January 2018.

Our initial sample consisted of 57 companies. However, 17 belong to industries with an expected low impact on natural capital, such as professional and financial services, and we, therefore, eliminated these in addition to 2 companies whose data we were unable to retrieve due to not having published a report.

The final sample, therefore, comprises 38 companies, as shown in Table 2 (see Appendix for the detailed list).

Table 2. The final sample

Industry/country	*South Africa*	*Botswana*	*Swaziland*
Basic materials	10		
Industrials	8		
Telecommunications	4		
Consumer services	3	1	
Public sector	3		
Consumer goods	2		1
Healthcare	2		
Technology	2		
Real estate	1		
Utilities	1		
Total	*36*	*1*	*1*

However, we specifically focused on the "basic materials" industry for two main reasons. First, sector-specific characteristics are mitigated, and second, it is a high-impact sector in terms of natural capital.

The impact that different industries may have on the environment is relevant with respect to the level of disclosure. Thanks to biology conservation studies (PBL, 2014) it is possible to determine the general level of impact (low-medium-high) that sectors determine.

Barbu, Dumontier, Feleagă, and Feleagă (2014, p. 236) propose a classification that orders the industrial sectors starting from those with the greatest environmental impact: "basic materials" is the first industry, so that is considered the industry with the greater impact on the environment and, more specifically, on natural capital.

Since Gamble, Hsu, Kite, and Radtke (1995), Deegan and Gordon (1996), Frost and Wilmshurst (2000), Gray, Javad, Power, and Sinclair (2001), Freedman and Jaggi (2005), Gao, Heravi, and Xiao, (2005), and Liu and Anbumozhi (2009) have found that environmentally-sensitive companies are more likely to release environmental information than are less sensitive companies, we have focused our analysis on companies belonging to "basic material" industry.

4. RESULTS AND DISCUSSION

This section presents the results on the information disclosure items, and Table 3 provides the descriptive statistics on natural capital disclosure.

Through the analysis of the disclosure provided by the 10 companies selected, we tracked 245 items of information regarding natural capital.

Table 3. Natural capital disclosure in IR sample

Locus					
Capital, only	BM/Value creation process, only	Capital and BM	Shareholders letter	Other	Total
44	123	1	5	72	245
Nature					
Historical, only	Forward-looking, only	Mixed	Not specified		
153	65	24	3		245
Type					
Qualitative, only	Quantitative, only	Mixed			
135	39	71			245
Tone					
Clearly positive	Clearly negative	Mixed	Not univocal		
109	33	1	102		245
Role of the information					
Input	Output	Outcome			
13	9	41			63

In our sample, the information on natural capital tends to be historical rather than forward-looking (62% vs. 27%), qualitative rather than quantitative (55% vs. 16%), clearly positive rather than clearly negative (44% rather than 13%).

In other words, on average, the disclosure generally covers historical and not prospective data, adopts more qualitative than quantitative tones, and is more discursive than numerical.

The timeframe is also distinct in 89% of sentences, 10% present both historical and forward-looking information, and in 1% is unclear, 29% include both qualitative and quantitative data within a single sentence.

As for the tone, beyond the factual information, in a significant portion (42%) of cases, readers were unable to interpret the information, determine whether it gave a positive or negative impression, or whether it was intended as merely a sentence to be taken at face value.

The fact that a consistent portion of the sample produces information that does not allow the reader to understand unambiguously the path of the information (whether positive or negative), far from being a limitation of the study, reveals a tactic of impression management, in the sense of the integrated reporting preparers let on purpose a layer of ambiguity upon their words.

Table 4 shows the correlation of the different variables according to the characteristics of the information items.

Table 4. The correlation amongst variables

Time orientation vs. type				
Variable type	***Historical***	***Percent (%)***	***Not historical***	***Percent (%)***
Qualitative, only	68	38	67	99
Quantitative, only	38	21	1	1
Mixed	71	40	0	0
Total	177	100	68	100
	245			
Time orientation vs. tone				
Variable tone	***Historical***	***Percent (%)***	***Not historical***	***Percent (%)***
Clearly positive	87	49	22	32
Clearly negative	20	11	13	19
Both	1	1	0	0
Not univocal	69	39	33	49
Total	177	100	68	100
	245			

If taking time orientation as our main variable, the quantitative information is mainly historical, which is logical given that historical data can be more easily measured. At the same time, the fact that future data almost entirely refer to qualitative judgements suggests the reporters' caution, inasmuch as not declaring clear numerical objectives for the future but a generic and narrative outline of expected scenarios and objectives.

Interestingly, time orientation leads to some differences in the tone of the disclosure: historical and forward-looking data have different proportions of positive and negative tones, with a greater proportion of positive tones for historical data.

When focusing on the information included in the business model, data are on average historical, qualitative, and positive for 80%, 81%, and 49%, respectively. When considering all sections instead, the ratios are 62%, 55%, and 44%.

This might suggest that the information in the integrated reports has been given more prominent positioning in the case of information included in the business model, as the reporters, well aware of the importance of the section, carefully weigh the locus of certain data.

The role that information plays is explicitly recognized in 26% of the sentences in terms of input, output, or outcome (21%, 14%, and 65%, respectively). In this sense, reporters seem to privilege their role as producers rather than as users in the business production cycle, so much so that the output/outcome percentage is significantly higher than for input.

At the same time, specific and accurate plans for the management of natural capital are scarce, as only 13 sentences refer to exact and timely management strategies.

The 10 reports included 17 photographs: 2 companies featuring 5 each, and 4 companies the remaining 7 (1.75 each).

Almost all the images depict a positive environment and relaxing sceneries (plants in the green, blue, and positive atmosphere; fishing, calm sea, harmony; a centre before and after a retrofit, more space, light, and sky; a woman, black, harmony, suits, smiling; exploration field mapping; one hand and later two hands with a reef; solar-powered street lighting in the country; a tray outside, fresh fruit, green palms, sky venues; a skyscraper, people working safely on a platform, white sky; growing green plant; analysis of the wood formation, white and serene colour; new hedge research tunnel, space, scenery, green; scenery of a peaceful environment in Africa; blonde young girl plants a tree when visiting a camp; hot-air ballooning above the annual wildebeest migration; a positive safari journey) while only one introduces a natural capital-driven issue (tree worm and later moth). Overall, their tone can be summarised as overwhelmingly positive.

5. CONCLUSION

The first relevant evidence about natural capital disclosure regarding the *locus* of the information: 50% of the information has been disclosed in the sections Capitals/Business model and Value creation process only, 2% in the Shareholders letter and the remaining in the 29% elsewhere.

The first number is undoubtedly encouraging, as it suggests that the majority of the information has been located in strategic positions of the reports; at the same time, however, the fact that 29% of the information is placed elsewhere implies that, at least in some cases, the information is generated and assigned in less prominent segments.

When it comes to the composition of the information inside the most strategic sections, namely Capitals/Business model and Value creation, some useful considerations emerge; first of all, most of the information is allocated within the business model (50%), as well as a considerable part is included the capitals section (18%).

Whereas just 50% of information are reported in the Business model and Value creation section only, we can affirm that natural capital disclosure has not been contextualised in an organic framework suitable for the assessment and is not part of a strategic approach.

Moreover, the information on natural capital tends to be historical rather than forward-looking (62% vs. 27%), qualitative rather than quantitative (55% vs. 16%); only 26% of the information provided (63 out 245) is explicitly classified as input, output, or outcome. Furthermore, natural capital information is clearly positive rather than clearly negative (44% against 13%).

In other words, on average, the disclosure generally covers historical and not prospective data, adopts more qualitative than quantitative tones, and is more discursive than numerical.

Justifications regarding environment rather than actions arise, paving the way for use of impression management tools.

Our results are in line with Stacchezzini et al. (2016): authors point out how companies provide limited forward-looking and quantitative information regarding their sustainability actions.

Integrated reports describe the surface of the issue only, setting out the issue of environment, but without moving in the depth of the technicalities which should be addressed: the surface of the work, therefore, is certainly carved, and yet the information lacks

In this context, the clear correlations between the more general theory of impression management and natural capital in the integrated reports emerge.

These pieces of evidence confirm that streams of studies, among others, Talbot and Boiral (2015), underline the companies' tendency to present an idealized image of reality. Moreover, organizations present corporate reporting information in order to take advantage of information asymmetries, adopting impression management strategies (Boiral, 2016; Boiral & Heras-Saizarbitoria, 2017; Merkl-Davies et al., 2011).

Finally, and probably in the opposite direction when compared to sustainability reports, integrated reports scarcely use the visuals instrument, preferring by far narratives; a possible explanation lies in the fact that the latest are more easily declined in terms of hypocrisy and rhetoric.

Our research adds to the academic debate on integrated reporting but is by no means comprehensive; the paper calls for further research in order to address the quality of natural capital disclosure. Moreover, additional studies are required to discuss if IR, as proposed by IIRC, is able to cover the needs of all stakeholders: some authors, such as Flower (2015), doubt it. According to Flower (2015), under the IR framework, the interests of some categories of stakeholders are important only

insofar as they impact the prosperity of the organization.

Companies avoid providing information on social costs and externalities unless they impact value creation capabilities.

From this perspective, the author sees the development path of integrated reporting as a conversion from a more social-friendly perspective to a perspective more focused on business reporting that has relegated the needs of some stakeholders to a secondary role.

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APPENDIX

Table A.1. The sample investigated

Company	*Country*	*Industry*
Anglo American (Platinum)	South Africa	Basic materials
AngloGold Ashanti	South Africa	Basic materials
ArcelorMittal South Africa	South Africa	Basic materials
Exxaro	South Africa	Basic materials
Gold Fields	South Africa	Basic materials
Harmony Gold Mining Company	South Africa	Basic materials
Implats Platinum	South Africa	Basic materials
Kumba Iron Ore	South Africa	Basic materials
Royal Bafokeng Platinum	South Africa	Basic materials
York Timber Holdings	South Africa	Basic materials